INFORMATION FOR TECHNICAL REVIEW – SOIL REMEDIATION OPERATIONS

Guidance for Permit Applicants

The following information will be used for the technical review of a Permit to Install application for a soil remediation process. This information is in addition to the general requirements outlined in the AQD document "Information for an Administratively Complete Permit to Install Application," Part 2 - Additional Supporting Information, Items A through F. Please note that all the information may not be needed for each application, nor is this document necessarily all inclusive. Additional information beyond what is identified in this guidance may be necessary to complete the technical review of any individual application. In the event a determination is made that new additional information is needed for all technical reviews, this document will be updated.

All referenced guidance documents are available on the Air Quality Division (AQD) website at AQD Permits to Install / New Source Review or you may contact the Permit Section at 517-284-6802.

NOTE: Selected remediation processes for soil contaminated with gasoline or petroleum-based products may be eligible for a general permit. The use of a general permit provides a streamlined permitting alternative to the normal permitting procedure for processes that meet specified applicability criteria. Information for the general permit is available on the Internet at General Permits to Install.

A. Process Description

1. Provide the following design information for the vapor extraction and/or treatment process:
   a) Estimated maximum influent soil vapor stream concentrations for all known contaminants, in micrograms per liter (mg/l) or parts per billion by weight (ppbw). (NOTE: mg/l does not equal ppbw in air.) Estimates should be based on soil gas analyses or other sampling carried out during pump testing of the extraction wells. Include an estimate of total volatile organic compounds (VOCs). NOTE: Estimates of benzene, toluene, ethylbenzene and xylene (BTEX) are not adequate for determining total VOCs.
   b) The maximum expected influent vapor flow rate, in standard cubic feet per minute (scfm).
   c) Any additional design information for the remediation equipment which may be pertinent to the operation.
2. Provide the following design information for the destructive process:
   a) A soil analysis listing all known contaminants and maximum concentrations, in parts per billion by weight (ppbw). Include estimates of total VOCs. NOTE: Estimates of BTEX are not adequate for determining total VOCs. If chlorinated materials are present, these must also by quantified.
   b) The maximum amount of soil that can be treated in the equipment, in pounds per hour.

B. Regulatory Discussion

The following state air pollution control regulations may be applicable. Please review these regulations carefully to determine if they apply to your process and summarize the results in the application. The Air Pollution Control Rules may be viewed from the AQD website. Click on "State Air Laws and Rules."

1. State of Michigan, Department of Environmental Quality, Act 451 of 1994, Natural Resources and Environmental Protection Act, Part 55 Air Pollution Control and the following promulgated rules:
   a) Rules 215 and 216 apply to an existing facility which has a current Renewable Operating Permit (ROP). A Permit to Install issued for the installation of new equipment or modifications to existing equipment is incorporated into an ROP pursuant to Rules 215 and 216.
   b) If the process or equipment was installed or modified after April 17, 1992, Rules 224 – 230 apply. Rule 224 requires the application of Best Available Control Technology for toxics (T-BACT) for all non-volatile organic compound (VOC) toxic air contaminants (TACs). T-BACT does not apply to emissions of VOCs. Rule 225 limits the emission impacts of TACs and requires a demonstration that the proposed emission of each TAC complies

with a health-based screening level. Compliance can be demonstrated using any of three methods described in Rule 227(1) including the use of computerized dispersion modeling. Refer to "Guidelines for Conducting a Rule 224 T-BACT Analysis," "TACs-Demonstrating Compliance with Rule 225," and "Dispersion Modeling Guidance" for additional detailed information

c) If the process or equipment was installed or modified after August 1, 1979, Rule 702 applies. This rule requires Best Available Control Technology (BACT) for new sources of VOCs. Refer to "Instructions for Conducting a BACT Analysis" for additional detailed information.

d) Rule 901 prohibits emissions of an air contaminant in quantities that cause either a) injurious effects to human health or safety, animal life, plant life of significant economic value, or property; or b) unreasonable interference with the comfortable enjoyment of life and property.

2. The PSD increments (40 CFR 52.21 (c)) and the NAAQS (40 CFR 52.21(d)) apply to all sources throughout the United States, regardless of size. Compliance with these air quality standards can be demonstrated using computerized dispersion modeling. An applicant for a PSD permit is required to submit PSD increment modeling for PM10, PM2.5, SO_2 and NOx, and NAAQS modeling for PM10, PM2.5, SO_2, NOx, CO, Ozone, and Lead as part of the application. Modeling for sources not subject to PSD may be done by the AQD. Refer to "Guidelines for Dispersion Modeling" for additional detailed information.

3. National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 63, Subpart GGGGG, P Standards for Site Remediation. This regulation is available on the United States Environmental Protection Agency's Website at Site Remediation NESHAP.

C. Control Technology Analysis

1. Rule 702 BACT applies to all sources of VOCs proposed to be installed within the State of Michigan. A Rule 702 BACT analysis is very similar to a PSD top-down BACT analysis. For those sources completing a PSD top-down BACT analysis for VOCs, a Rule 702 BACT analysis is not required. Michigan's air pollution control rules also define BACT as an emission limit. Rule 702 BACT should be applied on a flexible grouping of equipment – subdivisions of emission units and/or groupings of emission units – if it is logical to do so. Logical means that the principles on which the groupings (or subdivisions) are made are consistent with federal guidance and sound engineering practices. Refer to "Instructions for Conducting a BACT Analysis" for additional detailed information.

2. Best Available Control Technology for Toxics (T-BACT) means the maximum degree of emission reduction which the Department determines is reasonably achievable for each process that emits toxic air contaminants (TACs) considering energy, environmental and economic impacts, and other costs. T-BACT does not apply to VOCs. The analysis must be specific to the process and the TACs subject to a T-BACT review. T-BACT limits can be expressed as an emission limit, control equipment requirements, and/or work practice standards. Refer to "Guidelines for Conducting a Rule 224 T-BACT Analysis" for additional detailed information.